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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/596,586
Filing Date: June 16, 2006
Appellant(s): LARSSON ET AL.

Larsson et al.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/22/2009 appealing from the Office action mailed 06/22/2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Cain (Pre-Grant Publication No. US 2003/0204625 A1).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Cain (Pre-Grant Publication No. US 2003/0204625 A1).

With respect to claim 8, Cain disclosed method for optimizing the performance of a connection between a source node and a destination node in a multihop network (figure 1, and 0054, lines 1-3, where this shows the multi-hop network and the cluster leader node is an active node between a source and destination device), said method comprising the steps of: transmitting a beacon containing a measure of performance for the connection from at least one active node associated with the connection between the source node and the destination node (0053, lines 10-18, where the data/message that node k transferred to node m that contained information about its metric is the beacon): receiving at least one of the transmitted beacons at least one neighboring node associated with the connection between the source node and the destination node

(0053, lines 10-18, where the data/message that node k transferred to node m that contained information about its metric is the beacon).

Cain also disclosed calculating at said at least one neighboring node a cost function based on the measure of performance in each received beacon (0053, lines 17-18); determining at said at least one neighboring node whether the cost function for the connection between the source node and the destination node can be improved if said at least one neighboring node adapts at least one resource in the multihop network (0053, lines 17-18, where improvement is the purpose of comparing the metrics); and if yes, adapting the at least one resource to improve the cost function for the connection between the source node and the destination node; or if no, maintaining the at least one resource in the connection between the source node and the destination node (0053, lines 17-18).

As for claim 9, Cain disclosed all of the limitations described in claim 8, including wherein each active node performs the receiving step, the calculating step, the determining step, the adapting step and the maintaining step (0053, lines 10-18).

As for claim 10, Cain disclosed all of the limitations described in claim 9, including wherein said at least one resource includes: a route; a channel; or one or more physical layer parameters (0009, lines 7-13, where this shows the route limitation).

As for claim 11, Cain disclosed all of the limitations described in claim 9, including wherein said adapting step includes inserting at least one of the neighboring nodes into the connection between the source node and the destination node and removing at least one of the active nodes from the connection between the source node and the destination node (0054, lines 1-11).

As for claim 12, Cain disclosed all of the limitations described in claim 9, including wherein said adapting step includes removing at least one of the active nodes from the connection between the source node and the destination node (0054, lines 1-11).

As for claim 13, Cain disclosed all of the limitations described in claim 8, including wherein said adapting step is performed when there is a topology change within the multihop network, said topology change includes: a movement of one of the nodes; one or more quality variations in a channel between the source node and the destination node; one or more changes in traffic patterns within the multihop network; one or more changes in transmit patterns within the multihop network; or one or more changes in resource allocations within the multihop network (0054, lines 1-3, where this shows the movement of the node limitation).

As for claim 14, Cain disclosed all of the limitations described in claim 8, including wherein said at least one neighboring node adapts the at least one resource of

the multihop network in an opportunistic manner in response to an instantaneous topology change in the multihop network (0054, lines 1-11, where the node cluster m is the neighbor node, as listed in 0053, lines 10-18).

As for claim 15, Cain disclosed all of the limitations described in claim 8, including wherein each beacon includes a general broadcast part and a connection related part that contains the measure of performance which includes: an accumulated cost for the connection between the source node and the destination node; or a maximum allowed power for the transmitting active node (0053, lines 10-18, where the calculated cost is found in lines 17-18).

With respect to claim 16, Cain disclosed a wireless multihop network (0009, lines 1-4) that implements a reactive routing protocol to optimize the performance of a connection between a source node and a destination node (figure 1, and 0054, lines 1-3, where this shows the multi-hop network and the cluster leader node is an active node between a source and destination device), said wireless multihop network comprising: at least one active node located in the connection between the source node and the destination node (0009, lines 1-7, where the cluster leader is the active node), wherein each active node transmits a beacon containing a measure of performance for the connection between the source node and the destination node; and at least one neighboring node associated with the connection between the source node and the destination node (0053, lines 10-18, where the data/message that node k transferred to

node m that contained information about its metric is the beacon), wherein each neighboring node receives at least one of the transmitted beacons (0053, lines 10-18, where the data/message that node k transferred to node m that contained information about its metric is the beacon), calculates a cost function based on the measure of performance in each received beacon (0053, lines 17-18), and adapts at least one resource in the wireless multihop network if it is possible to improve the cost function for the connection between the source node and the destination node (0053, lines 17-18).

As for claim 17, Cain disclosed all of the limitations described in claim 16, including wherein each active node performs the receiving step, the calculating step and the adapting step (0053, lines 10-18).

As for claim 18, Cain disclosed all of the limitations described in claim 16, including wherein said at least one resource includes: a route; a channel; or one or more physical layer parameters (0009, lines 7-13, where this shows the route limitation).

As for claim 19, Cain disclosed all of the limitations described in claim 16, including wherein said adapting step includes inserting at least one of the neighboring nodes into the connection between the source node and the destination node and removing at least one of the active nodes from the connection between the source node and the destination node (0054, lines 1-11, where the cluster leader is a neighboring node).

As for claim 20, Cain disclosed all of the limitations described in claim 16, including wherein said adapting step includes removing at least one of the active nodes from the connection between the source node and the destination node (0054, lines 1-11).

As for claim 21, Cain disclosed all of the limitations described in claim 16, including wherein each neighboring node performs the adapting step when there is a topology change within the wireless multihop network, said topology change includes: a movement of one of the nodes; one or more quality variations in a channel between said source node and said destination node; one or more changes in traffic patterns within the wireless multihop network; one or more changes in transmit patterns within the wireless multihop network; or one or more changes in resource allocations within the multihop network (0054, lines 1-3, where this shows the movement of the node limitation).

As for claim 22, Cain disclosed all of the limitations described in claim 16, including wherein each neighboring node performs the adapting step in an opportunistic manner when there is a real-time topology change within the wireless multihop network (0054, lines 1-11).

As for claim 23, Cain disclosed all of the limitations described in claim 16, including wherein each beacon includes a general broadcast part and a connection related part that contains the measure of performance which includes: an accumulated cost for the connection between the source node and the destination node, or a maximum allowed power for transmitting active node (0053, lines 10-18, where the calculated cost is found in lines 17-18).

(10) Response to Argument

The appellant argues on page 5 that **"the routing mechanisms described by Cain seek to respond to changes in topological distance between nodes. In contrast, the mechanism of Applicants' invention seeks to respond to changes in performance between nodes; the invention using a beacon that contains a "measure of performance" between one or more nodes between source and destination nodes. In response to such changes in performance, a cost function is computed from which it can be determined whether to adapt at least one resource to improve the cost function between the source and destination nodes."** However, the arguments presented by the appellant appear to relate to the intended use of the system. Regardless of the reasons for the problem being solved, the invention, as currently claimed, essentially performs the same functions as the prior art. As seen in section 0053, the system uses the beacon that carries the metric of the nodes in order to perform a cost function/calculation, to determine if the system will have better performance upon a different configuration and then acts accordingly.

Using the broadest reasonable interpretation, a beacon will be any information that is transmitted to a node (for example k through m) that will carry information about a metric. That information is then directly used to make a determination of whether or not the nodes should reorganize themselves to improve efficiency, etc. Furthermore, a measure of performance is a direct measure of the path metrics that are available and used to make to calculations that will inevitably increase the performance of the nodes/system.

The appellant also argues on page 5 that "**the Applicants do not claim the transmission of a beacon that indicates the performance of a node. Rather, the Applicants' invention recited in claim 8 is directed to a method for optimizing the performance of a connection between a source node and a destination node**." However, regardless of the intended use of the invention, looking at claims 8 and 16, it can be seen that the steps to perform the determination of the connection is directly based off of the performance of the nodes at either ends of the connection. Furthermore, as the prior art is reconfiguring to obtain the most efficient topology, it is thus, by definition, optimizing the efficiency/performance of its connections.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

JLG

/John Follansbee/

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